

# **Muscular Systems: An Engineering Masterpiece**

## **The Muscular System of the Body – Dr. Robert Elam**

Introduction: Muscular systems are extremely complex. Examination of these muscles leaves the inquiring mind with thousands of questions. Could these muscles so complex and well designed just happen? Billions upon billions of years of random combinations could never produce the muscles of any creature's muscular system. Muscles like any machine need certain elements of design in order to function: they need two rigid members connected by a flexible joint. They need points of connection for leverage. They need a control circuit and a feedback circuit. They need a tension sensor. And they need connectors, cables pulleys and they need some method for lubrication. They also need some system for the going and coming of the moveable parts, or levers. Putting all of these together is an art called engineering design for machine levers. There is absolutely no place where such a mechanism could be considered random, chance happening, or accidental.

There exists only two types of structural systems: “endo” (interior) skeletal and “exo”(outer or external) skeletal systems. Endo means that the skeleton is on the inside of the system and supports the whole by being the basis of the construction and the exoskeleton means that the structure that supports the creature is on the outside. In other words the endo means that the soft tissue is on the outside while the exo means that the soft tissue is on the inside of the support structure. There is no other system of support. However one must note that the skeletal bones of animals are hollow exactly like the insects skeletal system with one great difference. The bones of the animal have substances on the interior for the production of the blood cells, while the substances on the inside of the insects structure includes muscle, nerves, connection tissue, as well as sensing devices for pressure, stress and feedback and the supply of nutritional substances: food, water, oxygen and waste removal. Whether there be single cell creatures, multiple-cellular, animal, insect or plant life, there is no other type of structural system.

We see life in the waters of this world, we see life on the surface of dry land and we see life in the air. We see mobility in the water, mobility on the land and mobility in the air. We also see the living but immovable things like plants and fungus. We see microscopic life in all spheres of the earth. We also see life in the phylum Arthropoda (“insect” – hexapoda) aquatic life, dry earth, and aerial worlds of the earth. Each has special functions, forms and structures. In fact it is the most abundant form of life on the earth, over 800,000 types that are known and registered; and according to some, there are possibly the same amount of forms not registered. Spiders (Araneida a sub class of the Arachnida order) are also like the insects in that they have an exoskeleton which covers their soft tissues and internal parts.

The outer skeletal shell of these insects is made up of proteins that are processed in a polymerization process called sclerotization. However their joints do not become sclerotized, and so remain flexible. This is an interesting discovery. How did the insects learn to do just that? How many had to have stiff legs in order for them to learn how to control her sclerotization process to have only flexible joints? How many courses of engineering did they take in order to determine where is the best place to connect their muscles in order to have maximum strength and flexibility as well as speed in dynamic displacement? Do we find any rejects from the experiments that went wrong?

As one considers the case of the exoskeleton system there are some interesting problems of engineering that must be answered. However the beginning of the investigation should be with the cell: the single cell creature. Why? It is from the single cell module that we have the great variation of cells and cell structures. From the single cell we have the muscle cell, the bone cell, the nerve cell, the organ cell, etc., etc., etc.

A mono-cellular creature is a creature made up of one single cell. That cell is in itself an interesting engineering puzzle.

To understand the muscles one needs to understand the cell, the nerve, the skeletal system and the joints. Examine a cell just a little. The simple cell is not so simple. It is in itself a very magnificently complex structure. In fact the very nature of the cell leaves the scientist with more questions than answers. Every living thing is composed of living cells; not just one type but many different types of cells. From the simplest form of life to the most complex, the living cell is what composes each being. And yet the simplest cell is so extremely complex. In fact it is so complex that the term simple is in no way adequate for the structure. The only answer one can have from the scientist concerning this simplistic structure is:

We can not prove God, therefore He does not exist. Random selection is the only answer we can give.

Random selection and chance happenings do not answer the requirements of the “simple cell” whether that cell be an amoeba, bacterium or the muscle cell, or neuron; or, for that matter, any other cellular structure that exists.

## **The Cell -**

According to the pre-medical and Biology classes in schools around the world one must accept it as a fact that all life is the product of random chance happenings. There could not be any guiding force or intelligent Creator (other than “Mother Nature”). The happenings and developments of the life systems is the result of immaterial and irrational forces. Biology teachers declare that what we encounter within the scope of living material is the product of “Mother Nature”. Can, or could such a fairy tale explain, answer and describe adequately the life systems we see around us? Some questions need to be answered without using “fairy tales”. Let us consider some of these questions.

Consider the single cell creature: The cell is composed of essentially three major parts: The Nucleus, the Cytoplasm and the Cellular Walls and containment Structures. An engineer or a scientist should be honest in his research concerning these structures. How could such a structure develop accidentally? Let us consider what we are examining. Here is a box structure with extremely complex input and output openings, valves which allow certain components to enter while rejecting others, and other openings that allow certain other components to be discharged, while retaining the fluid mixture that is essential to the life of the organism. The valve system of a motor allows the combustion material mixed and ready to enter in through one set of valves and the exhaust to exit after combustion through another set of valves. That is engineering design. Yet as we look at the cell's input output valves... we are told that it is not designed but a pure random chance happening?

The cell operates in such a manner that the nucleus controls all operations within the cell. How is this done? No one knows. All we know is that it is accidental. Inside the cell, one finds structures that are almost completely unknown as far as their "simple" functions are concerned. There is a small amount of information concerning the Mitochondria, the Golgi and the Lysosomes. And what is known about the Mitochondria? The theory is that somewhere down the line the Mitochondria was a bacterium that invaded the cell and found it so pleasant that it decided to stay and become a part of the family. So how could a bacterium invade the cell without total destruction of the cell? There would have to be a rupture of the cell wall for it to enter into the cell. That rupture would cause the death of the cell. There could be no co-existence.

The cell is limited and bound by the cellular walls... any breach of those walls would cause the cell to suffer a traumatic rupture and the cytoplasm would leak out. That would be fatal or in other words - the cell would die. There could be no invasion of the cell except by virus (being small enough to pass through the openings which allow nutritional entries to enter into the cell). A bacterium is a single cell structure, a creature about the same size as the cell.

Let us consider this. Here is a cell structure that invades another cell structure. Why should one cell invade another? For food! If the invader is victorious, the invaded is destroyed. Its life components are absorbed by the invader. There is no cohabitation. There is no combination. The winner goes on and the loser is consumed. The single cell creature has no defense system against an invasion.

So how does one go about explaining the single cell creature, of which there are millions of types and forms living around this world?

Equally important is the combinational multi-cellular creatures. How did they combine? Was it by mutual self interest? In the microscopic world there is no combining. There exists only eat or be eaten. How then was it done? When was it done?

Returning to the single cell creature: How did the single cell nucleus generate and then gather together that Cytoplasm? And then how did it build the walls of its own structure while holding on to the Cytoplasm? we have to also add these to the question of how did

the single cell structure become a multiple-cell structure? Were these accidents? Perhaps two cells bumped into each other and began a conversation?

## **The Cellular Structure:**

How does one go about canning tomatoes? Select the tomatoes desired to be canned. Next the fluid preservative is prepared and the tomato processed. Next, the cook must prepare the jar, the lid and the seal. After sterilization, the tomatoes are poured into the jar and sealed. No outside air is allowed to enter into the jar. Okay, so how did the cell come to contain the Cytoplasm around itself while it was building the outer cellular wall structure? How was the nucleus able to develop the wall structure to enclose the fluids and to preserve itself as well as the Cytoplasm within the sealed cell? Explain the basic structures? We have an engineering problem! A house does not build itself from the inside out.

Consider the reproduction process of the cell: The reproduction begins within the nucleus as the chromosomes reproduce themselves and separate from one another, each to its own side of the cell. Next the nucleus begins to separate by division. As the nucleus is dividing, the walls of the nucleus close in shutting out any possible invasion of the cytoplasm within the nucleus. After the nucleus has divided, cellular walls begin their process of division. The amount of cytoplasm increases just enough to allow the cell to double in capacity while the cellular walls form a division and a separation between the old cell and the new one. While the cell is doing this, there within the cell, the funny little parts are also reproducing by duplication. Does this sound like randomness? Is this pure chance? How could such order appear in the least of all living things?

Now comes one of the real problems: how did the cell do this in the time of the first primitive proto-cell? Where did the cell develop? Was it in the ocean waters? Is the cytoplasm water soluble? More important is the question of where did the nucleus gather together its own ingredients for life? And what are the ingredients necessary for life? Is it possible to put all the ingredients of life into a microscopic environment where one could allow the "Mother Nature" fairy tale to function? So what is necessary for the living cell to obtain life? Or to continue life after "ignition"? How could impartial random chance produce the cell nucleus, the cytoplasm, the cellular wall structure and at the same time produce the literally scores of ingredients necessary for life? Each part is necessary and without the essential proteins and enzymes the cell could never "spark to life".

Let us suppose for one instant that we have that primordial chemical soup mix these scientists declare existed, and we allow that a series of lightning strikes to mix the soup into the amino acids. We could even fill the pond to full and overflowing with these different acids. But really is that enough to create life? No! That is a long, long way from the creation of any cellular structures! One could even say that the difference is light-years distant from such a proposition. The engineering feat is beyond comprehension. There is design, not random, non intelligent accidents, within the creation of the nucleus of the cell! There had to be intelligent design in the creation of the nucleus, the mitochondria and the cytoplasm as well as with the components with the cellular structure itself. Each

component has its special and complex functions. Within the nucleus one finds the DNA, the RNA, the Chromatin, the Nucleolus (none of which could be declared to be random in action, purpose, or design), all of these parts are included and bound together by the nuclear membrane which holds the entire nucleus and at the same time isolates this whole nuclear structure of the cell from the other parts within the cell, but at the same time controlling the total functional operation of the cell by forms of encoded signals.

Everyone knows about the chloroplasts within the plant leaves. That substance gives the leaves the green color. So what is the chloroplast? It is an extremely complex structure that has a special function. Through these chloroplasts the plant cell functions: the carbon dioxide (CO<sub>2</sub>) that is received into the cell through special openings in the cellular wall; is converted into free carbon products being then released into the plant and free oxygen being returned to the atmosphere around the plant leaf. How was that engineering principle accomplished? There were no chance happenings involved in the creation of the single "simple" cell... whether it could be plant or animal, whether it should be single or complex, fungus, or what have you. The cell is a marvelous living machine that functions, and has a vastly complex design. It could not have come from accidental chance happenings. It could never have come from space where radioactivity is so strong that any such complex order would be destroyed. Evolution cannot produce the procedure, could never have produced the procedure and never will produce that extremely complex procedure necessary for the existence, or for its own organizational structural stability. Scientists talk about empirical procedures and proofs. They try to say that they rely on evidences, empirical evidences, but statements like "Mother Nature did this", or "Mother Nature did that" are by far worse than "God created". At least God has intelligence! Nature mother or not can not resolve any problem.

## **The Muscular Systems:**

Recently a DVD was released about the evolutionary development of life. The film, produced by BBC of England, had great artwork and presented the theory of evolution as though it were factual, proven, and that all true scientists accepted it as factual. Billions of years are presented as necessary for the development of life systems. First single cell creatures and then the multicellular creatures were developed increasing in complex orders. However, the truth is not being presented at all through these films.

Man has always looked for a system that produces more energy than it consumes. But the real problem is that there exists detrition in all systems, or in other words: the consuming of energy which does not cause benefits, but rather the wearing away and destruction of machine (whether that machine be metal, plant or flesh).

Consider this fact: each creature is composed of three elements essential to life: the structural part, the motor unit (that which produces energy for the movement, as well as the movement of the structural and moveable units, or that which moves) and finally, the control part (the switch and controller, or simply the brain). No machine operates completely by itself. The true scientist looks at these parts equally, and separately; then he looks at the entire system as a complete whole. However that is not the case with

evolution. The scientist looks at the end result and says: “My, what a marvelous random device!”

There are many differences in the types of creatures and their structures. For example one finds multiple-cellular creatures within classifications of insects, animals, birds, fish, plants (both aquatic and terrestrial) and fungi. The basis of each type of creature is different. One should not look at the similarities between the species, but rather the differences. Let us consider the simple thermostat: Nothing could ever be said about the mechanism being random. There is a switching mechanism; there is a sensory unit that senses the temperature of the environment, and there is a sending unit. How does it work? The sensory unit senses the difference of temperature and manipulates the switch to connect the unit necessary to either raise the temperature or lower it. The switch actions the operating circuit. The sending unit sends the information (connect, disconnect; either air or heat) to the proper unit to be initiated. No one would dare say that something as basic as the thermostat is a random device. It is a designed device that functions exactly as designed. There are no living parts. There are only two moving parts... the temperature sensing device and the switching device. So what has that to do with the body, the animal, man, fish, bird, reptile, fungus, insect or plant? Just one thing, there is a thermostat in each cell! That thermostat is operated not by bimetal strips, but by living sensors that exist within the cell. It turns up or down the heat being produced by the cell. It opens or closes the gate. How? By molecular computers, sensors and circuits that control the very input and output mechanisms of the cell. How? No one knows, yet they declare that it is a chance happening!

Recently one scientist noted that there are over twenty five million differences between the chimpanzee and man as shown in 1.5% of their genetic systems. Personally I think that missed the mark by just a few decimal points. He did not elaborate on what he was saying. No facts were cited. No comparative data was given. Other scientists declare that there are four percent of genetic differences, while still others declare that there is a one and a half percent difference between the two creatures. What is the difference? This is enough difference to the point that man cannot mate with any monkey! It also appears that there are a different number of chromosomes in the chimp compared with the human system. Not to mention the differences in the number of cells in the bodies, the size of the body structure, the hands, the length of the arms and legs, the fact that the chimp can not walk upright; then one finds the size of the brain and cranial capacity to be vastly different! What is the difference? It is magnitudes, not millions, but trillions of cells operating differently. Each gene carries trillions of characteristics of differences uniquely individualized. That makes man a man and monkey a monkey.

Let us consider the insect, fish, bird and animal (kingdoms) structures. Each creature has its structure which is its basis for its proper life and purpose (that being the reason for the living creature living). One can not say that the design of the body was created by the need, but the creature was created with a purpose. What is the purpose of the wing? It is to fly. The wing is part of the avian purpose, and it is not the result of changes brought about by chance happenings. The amphibian did not *decide* to fly. The fin of the fish is not the result of changes brought about to non-fish creatures inhabiting the water world, and their desires, or decisions to create fins so that they could move around in the water world. How

could a spider create two extra legs being changed from an insect, and why would they be more useful to such a creature? Why would an insect decide to cover itself with hard protein when it had no enemies when it evolved? According to the current theory the insects were here two hundred million years before the birds.

## **The Insect and Spider Worlds.**

The classification of insects covers over 800,000 species of known insects, all with six legs. All insects have hard exteriorly segmented bodies, and specially adapted for their special life style. Many insects have an outer structure of cells that use hard proteins to protect themselves from outside attacks... or so say the scientists. However, the attacks still come and the insects have many natural enemies that do not even ponder for one second the outer structure of their bodies. The insects do have what looks like an armoured and shielded structure. Not only is it shielded, it is very mobile. They also have legs for movement; and those legs have developed external and internal structural systems equally as complex as its body armor, and more complex than the outer covering, and of the body of any creature of four legs. Another thing that one finds within the insect is a brain that governs the process of living as well as the operation of the internal organs controlling the life processes of the creature functions. This means that the insect recognizes food, at least by smell and by sight; is able to locate food, to plan attacks, to capture enemy creatures or what it desires, to eat that which it captures, as well as fight when necessary, to defend its home (which it recognizes, builds and possesses), and equally is able to work in teams (like bees, wasps and ants). Many insects are able to fly, and all are able to navigate, to locate, to recognize, to collect and to carry food and desired items to its nest or home. These insects recognize enemies, as well as aggression and danger (as is proven in the case of the escaped African bees that have come up from Brazil by migration). They know when to leave the area and when to attack. That does not sound like randomness at all, but rather intelligence and design. Let us consider a robot. No robot has yet been developed by random design that could do thing like that. In fact no robot has ever been produced by any thing other than design, intelligent design. Man has developed drones that fly over the enemy and record placements and actions, but there are no drones that are capable of recognizing danger and countering that danger. We could say there are no autonomous robots capable of decision making in the battlefield situation.

These insect structural features are totally different from other creatures. They are a class completely separated from all other forms of life. Some exist in aquatic environment, some on land and some underground. Some insect like creatures have four legs (water spiders, water beetles), some six (the classification of insects defines this as the criteria), some eight (the spider species) and a few have a multitude of legs (one has been found that has 666 legs)[It is interesting that all of the multi-leg insects have pares and none have been found that have an odd number of legs! Were the creatures random or chance happening, the odds would also be seen]. All have the same type of covering (whether they are land or water, whether they are insects or spiders). How many different types of insects exist? Has anyone ever cataloged all of the numbers and types of the insects?

The systems that the insects have are engineering master-pieces. One finds the internal muscles connected to points that are *exactly* positioned for the best leverage, for movement, for raising, supporting and transporting heavy loads, not only is the body involved, but food items. The brain of an insect is so small that it could be considered almost microscopic and yet it is able to manage the movement of this system to such an extent that the creature is able to adapt to any environment, to carry extremely heavy loads and even to defend itself against attacks by predators. How is this possible from random chance happenings? There is no randomness in the body and brain of the insect!

The legs of any and all insects are tubes... hollow on the inside. The muscles are installed within the hollow interior of the leg, connecting to points within those tubes, controlled by nerves that receive messages from the brain concerning the exact movement necessary to accomplish the mission desired. Actions, reactions and movements are all controlled and ordered. Feedback is necessary and constant watch is kept over the entire system; not to mention the necessity to have nutritional input and waste disposal systems as well as distributional systems that reach all cells and muscles within the insect's legs and feet. As any engineer knows the systems need visual and sensual feedback to operate correctly.

Now why are the muscles on the inside of the hollow tubes of legs? Was it to protect them? What could be the reason? Why would "*Mother Nature*" cover the muscles with a hard covering? If one answers this question with a declaration of intent, then the result is a product of design. If there is design, then there can not be random production of changes or evolution! So why did the insect develop muscular systems within these tubes while the animals developed their systems covering hard bone structures with soft muscle tissues, or placing the skeletal structure on the inside? (Endo- and Exo- systems). How was that done by random chance happenings? The real answer is in the simplest of things. After all, the world of evolution goes from the simple to the complex. Therefore, the insect must be much simpler than the fish right? And the insect must be more complex than the single cell creature! Right!?

The tubular structure is by far the stronger of the systems. These locomotive systems have inspired men to imitate insects, from machines to robots, and on to space probes. Even in science fiction the insect has had a great influence. Extraterrestrials are sometimes imagined to be like insects, overgrown insects. Man has copied the insect legs and developed systems based on this same idea. The placement of the muscles within the tube cannot be random even in the systems of the design from man!

The muscles have to be woven into the network of muscular connections, veins and nerves to act in the proper way. There is nothing within these systems that could support the idea of randomness, or chance happenings. Recently I read an article where the author declared that the system of muscles in the spider's legs do not have ability to contract and retract. They rely upon the contraction and relaxation of the same muscle systems. I ask a very simple question concerning this theory: Have you ever watched a spider wrap a trapped insect in its web? They are extremely agile. Their movements are not only inward and outward, but forward and backward at extremely rapid paces. The thought is unsupported. Within the leg tube are muscles for each type of movement. There are muscles for contracting the leg and retraction, or extending the leg, as well as side to side movements.

So how is the insect leg operated? Could one conclude the operational system is random? No way! The leg of the insect is not extended and contracted by random movements from the muscles, but the nerves are actioned by impulses from the tiny brain thus creating the movements desired and planned by the brain. Those movements are in four directions: up and down, forward and backward. Exactly the right amount of pressure is generated for the job; if that job be lifting a weight ten times over the body weight of the insect, or if the movement be forward, or if it be turning, or reverse, or climbing, or flying, or just standing. The insect is a marvelous creature. Its antennae, its brain, its internal structures, and its body structure are just as complex as its legs and muscle systems... all operate in marvelous union. All controlled by a pin head brain!

The brain of the insect sees the exterior world through its multifaceted eyes, it acts and it reacts. It sees a world totally different than humans see and know. The insect is a mobil creature; a thinking creature. One cannot escape the fact that the insect is a product of designed, it is a designed creature. Their legs as well as all body parts are designed for operation, they are engineering masterpieces. The internal organs are exactly what they need to be in order to live; it is absolutely necessary, nothing within it is of randomness in function or design. There is not one single thing about the insect that was left to chance within the basic structure of the creature. Each part has its function and one is hard put to believe that all of its systems are nothing more than chance happenings. Their reproduction systems are still another factor to consider. The vast number of reproductive cycles allows the insect to continue to be the number one problem of the farmers of the world. However, our problem is not the pesticide part, but the insect itself. The vast number of insects is in itself a major job of classification. How is it possible to imagem all of these insects developing by randomness and evolution?

However there is still another problem that crys for an explanation from the scientists that believe in evolution. There is the problem of the body balance in the flying insects. Consider the body of the dragonfly, for example. Its long body has little or no weight and the head has almost all of the weight. Its legs are in the front portion as well as the wings. I remember as a boy trying to fly airplane models that were not balanced right. No amount of power can make a plane fly if the weight is out of balance. So how did the random workings of nature produce the flying creature, whither insect, beetle, bird or reptile? The wings must be at the balance point, or better, a little forward of the balance point; now that is an engineering problem. The bee and the wasp, the bumblebee and beetle are all examples of flying insects. Each has its body, wings and legs. They all have eyes, brains and sensing organs. They all have reaction times that allow them to react to outside dangers and they all have defensive and offensive weaponry. Not one of these creatures could be declared as being a product of random design. Unless you redefine random and chaos to produce engineering design, like aviation design, wing and lift designs, body functions, and fuel, consumption and weight analysis.

As for flying, who taught the insect to fly? How do they learn to naverage so that they are able to fly long distances to find food and to return to their nesting areas? The insect has no random naverageational system within its head, and no global tracking devices. That system is a design feature. Years ago I worked in an industry that produced a computer for an aircraft that was a weapon of war. That computer was the brain of the aircraft, and was

capable of navigationally directing the aircraft over land, mountains and seas, holding an altitude of 50 meters above the ground level while flying at five hundred and fifty miles per hour, flying without human control, to penetrate national defenses and attack a specified and marked location, well over four hundred miles inland. Would you consider such a device as a random design? No? Consider the brain of the bee. It is able to receive information, recognize danger and food and navigational information, carry its body (a feat the some have said is impossible) through a dense forest situation, find, locate and collect food source information, load up on the juices of the nectar of flowers, fly back to its hive or nest and communicate to other bees all of that information: direction, distance, species of flower and quantity of food products that are found at the site. Could you really consider that as randomness? If you do, please tell me what you define as “randomness”. The reason is that science has defined chaos as being without order, but they say that they have found order within the chaos. But, if chaos has no order, and they have found order in their chaos, then their chaos is not chaos! If there’s order then it’s not random. Chaos and randomness are defined as without order. Having order within these systems we must conclude then that these both are no longer valid definitions.

## **The Animal and Human Vertebrate Muscular Systems:**

One of the problems of the insect is growth. With each increase in size the outside shell, or skeletal system must be shed and a new one developed to replace it. This does not just happen with the insect but also with the serpents and certain other reptiles. With animals this does not happen. Growth is constant and the capacity of increase is developed within the structural system itself. The muscles of the human body as well as the muscles of all animals (mammal as well as avian) allows the creature to move freely and rapidly within its environment. There are three types of creatures inhabiting the earth: those that are aquatic; that are of dry land and those that are flying creatures or creatures of the air. Each type is not a modification of another type, even when one notes that there are certain equalities between the types. A study of the muscles of any two types of creatures should bring to notice a vast number of differences. It has been declared that the chimpanzee is our closest relative, but recently it was noted that there are over twenty-five million differences between the two, a very gross underestimate. How many differences are visible? And how many are microscopic? One system is not a copy of the other... even trying to think it to be more simplistic is irrational! Whither we are considering the systems to be endo- or exo-systems, ***nothing*** is simple.

Consider the muscles of a fish. They all have a skeletal system made up of a column of vertebral bones that allows the fish movement from side to side freely, but vertical movements are harder to accomplish due to inflexibility in the vertical plane (the vertical flexibility is a feature that the aquatic mammals have). They have fins for movement through the water (having flexibility and motion in the upward and downward direction as well as to the forward and backward direction and a twisting ability as well). They have a mouth and they have eyes as well as a brain with which they are able to survive in the constant dangers of the watery world around them. Their muscles are not random at all.

There is no sign of random selection or design within the muscular system. They have a system that has equalities to that of an animal. Does that mean then that the fish evolved into the animals? Or should we say as I have read that a cow went into the ocean and became a whale?

Muscles need connection points to be able to move. That is a product of engineering and design, not randomness! Fish have muscles that are similar to those of the reptile and even of the snakes. And yet there are great differences between these creatures. Just to mention a few: fish fins are not feet, nor legs; their respiratorial systems are different; their brains are different, their movements are different, their tails are different. Their outer coverings are different. Even the fish that “walk” are not land animals. The catfish that goes across land is not an evolutionary link. The shark that walks is not an evolutionary link.

Examination of the muscles reveals another factor: their muscles are connected to bones and covered with outer skin. The bones form the base for movement allowing the fish to swim and be flexible up to a certain point horizontally. However the muscles of the human body are totally different. They are connections of bones to other bones allowing the body and members to move in all directions; vertical as well as horizontal. There are no random connections of the muscular system anywhere within the body of man, or of an animal or a fish. Although the body flexibility of man is far greater than that of any animal except for the cat (feline) type of body.

Each muscle is connected exactly in the precise leverage position to create maximum movement, force and speed for the elasticity of the muscles involved. There could have been no prolonged developmental research of muscular systems. The muscles of the arm and shoulder of man are *woven* together within the upper arm, connecting the mobile bone and collar base bone, to backbone, thus allowing the arm to move up and down forward and backward in an almost hemispherical motion of more than one hundred and eighty degrees. The muscles of the human back are another network of interwoven miracles. Again one finds no sign of random connections. Each muscle is connected to its proper vertebra and rib or other bone forming a foundational base that allows a twisting of the body and shoulders up to around forty-five degrees to the hip alignment. There is no sign of random selection in these bones and muscles.

Consider the neck muscles and the cranial connecting muscles. Muscles are connected between vertebral bones and cranium, which allows the head to freely turn from side to side and to tilt up and down with almost ninety degrees side to side, and upward and downward of almost 90 degrees. Could one decide that is random, or should one not consider that to be design features.

Is there any way that one could find something random within the body of any creature? Each part and portion of the muscle systems is intricately interwoven and connected at the proper place to make the body function. Is there any way that this can be classified as a random or a chance happening? Consider what the engineer does and how he designs a system. Could man design a system better than that of the human body? Never! The only thing he could do is try to imitate the systems of the body.

## The Skeletal System and Muscles of the Bird...

Man has always desired to fly like a bird. He has designed wings and tried to imitate the bird, yet there are major problems. Man can imitate the wing of a bird, but he cannot imitate the *muscles* of the bird's body. Man can create all of the imitations of birds he desires, but it will always be artificial in its flying. Man needs a *machine* to fly.

Man will always lust after the experience of the bird. To rise above the earth by his own power is impossible for man. Why? Man is an earth-bound creature. His internal bone structure and skeletal system are earth bound, while those of the bird are different. The bones are structured differently in the bird than in man. Man has solid bones especially prepared for earthly work, lifting, carrying and short term work. The thickness of the bone depends on the weight and height of the man. But the bird has a different internal structure to their bones. The bones are hollow and filled with fibers made to strengthen them with less length to mass ratio. There have air pockets within the bones which allow great strength as well as a minimum of mass. The muscles are attached to the bones in such a manner as to allow the bird to achieve flight. Wing muscles are connected to the breast bone and to the spinal column as well as to the shoulder support bones. These muscles allow the bird to move their wings up and down, forward and backward around the balance point of the body. The legs and wings are proportionate to the task they perform; thus providing up and down movement which is one of the basic movements for flight. These movements are all around the pivotal point, and the balance point of the whole body. The balance point of a man is closer to his mid section while with the bird it is in the chest region.

The up and down beat of the wings does not give flight, nor does it sustain flight once in the air. This was one of the great errors of the men who tried to fly in the first years. A flat wing does not sustain flight. There must be an aerodynamic air flow, creating lift and propulsion. "Mother Nature" however having no courses in airflows, lift ratios and fluid flows, and knowing nothing about anything, while being nothing more than random happenings; was able to not only create the right design of the airflow and the wing. Should we not give "her" the Nobel Science Prize of prizes? The bird has absolutely nothing random or accidental in its wing design, movement or operation. Man with all of his theory and learning cannot develop a wing like that of a bird. But then again man is not as smart as dumb nature!

How does the bird wing work? If it is not an up and down motion, what is it? The wing moves in horizontal and vertical figure-eight beat patterns. The wing moves forward to capture air and then down and backward to push that air down and back, causing the bird to move forward and upward. The return is rapid and upward and the wing captures more air and thus moves forward and rises above the last position. There is one other thing that must be considered in the bird's wing design – the feathers! Each feather has its special function in flight. Without the feathers, flight is even harder to obtain, and the muscles

must work even harder. Wing tip feathers work as spoilers and gatherers in the positions four positions of wing flight.

The muscles are not randomly selected, but knitted together and connected at the proper points for leverage. Each wing needs to be paired with the exact mirror image of the other one. They must be perfectly balanced. If there is not equality in the function of the wings of the bird, it will develop unequal lift and thrust... great problems for flight. This is evident when the bird has a hurt wing. It can fly with a broken leg, but it needs both wings functioning in balanced order in order to fly.

These muscles are not random chance happenings or connections. They are designed, having engineered features, designed for flight and only for flight. They become almost a hindrance while on the ground. No engineer could do better in designing a flying, self propelled, auto-sufficient, auto-controlled creature.

The “bird brain” is not a joke. It is a marvelous organ within the bird, allowing it to calculate, to navigate and to fly. There are birds that are capable of catching insects in mid-air (while flying in darting motions); something the supercomputer still can not do. How could a computer anticipate the movement of an insect while flying? Consider the small problem of calculating the path of a rocket and try to intercept it!

There are birds that are capable of catching a running rabbit within a forest situation, running through the brush. How could a computer (as small as the bird’s brain) accomplish such a feat? And yet it is done, and with those flying muscles and bones controlled by a small brain. These were not randomly placed in the bird’s airframe: bones, muscles and brain, perfectly placed in order to control the movement of the wings, the calculations being made to determine the speed of two objects and at the same time determining where the intercept will take place! Controlling the speed, the direction and the balance, as well as the calculations of the climb or descent of the objective goal, as well as controlling the very bird itself is nothing easy. Random orderings do not account for these muscles, these nerves, these bones and the brain problem-solving abilities.

The extremely complex abilities of the living and flying machines as to being created by random chance, disputes the thought: the absurd thought that these birds, their bone structures, their mental capacities and their muscular systems are random accidental happenings! That is like saying that the whole system of the F-22 tactical fighter, computer and all, happened by pure chance. No hurricane could have developed that aircraft. Was there any chance involved in such a development? If you answer: “No!” then you have declared the simple truth. Neither could one say that the living, flying machine that man has called a “bird” (and we are listing the vast number of birds known here) is the result of random accident or chaotic chance happenings. Let us now consider the muscular systems of the human body. One other thing is that the engineer has a scrape pile of rejected prototypes that have failed to fulfill the design requirements. We see none of these scrape piles for rejects for the living creatures, whither insect, fish, amphibious, mammal, or bird.

## The Human Body

Within the same scope of movement and design one finds the most marvelous muscular system of the human body. Each of the hundreds of muscles is connected to the right place where exact leverage is necessary for the operation of the body member, or part, no matter what part of the body it is that is being considered.

The arm muscles are connected in such a position that they allow the arm to have a movement of almost a complete hemispherical area. Is that coincidence? Is that chance happening? Are we really able to reject the thought of a designer and say that God did not have any part in this happening? Are we really able to satisfy the need of engineering skills and design features such as joints, bones, tendons and sinews, muscular systems balanced by countermuscles; all by declaring that “Almighty Mother Nature” is responsible for such a complex system; and then, to declare that “I cannot accept God as the Creator”, because “I can not put Him into the laboratory to test His presence”? Is it not absurd to think that a back hoe or an airplane could be a chance happening? Is it not absurd to declare that the space shuttle is an evolutionary product of the genetical cross of the airplane, the ship and the rocket, receiving the cargo bay from the ship, the wings and tail features from the airplane and the boosters from the V-2 German Rocket? How much more absurd is it to think that a marvelous machine like the human body could be developed by chance, by “random design”. These products of man are only imitations of the worldly things around us.

Look at the muscles of the arm or the leg of a human being and notice how those muscles are connected to the bones. Are those connections random, accidental in form? They are connections made from bone to bone, for the express reason of movement. That in itself declares design and engineering skills. The “elbow” and “shoulder” joints allow for more than one type of movement: the forearm draws upward and inward, or outward and downward for an almost 160 degrees of angular movement. The shoulder joint allows the arm to have more movement, thus allowing the forearm to twist in an almost 270 degree circle. This allows the forearm to move in a hemispherical pattern of 200 degrees at the elbow and outward. This is accomplished by muscles attached to bones in locations that allow the forearm to have free motion. How could “random” or chance happenings create something as well organized and “designed” for movement such as the arm, having features that inspire imitations from intelligent men designing machines?

Look at the upper arm muscles. They are attached to the bone of the arm and to the shoulder. These muscles are woven together. They work together to allow the upper arm mobility in reaching a circular pattern of 240 degrees of movement from the front of the body backward on the horizontal plane while allowing the arm to move in the vertical plane of a little more than 180 degrees. These joints allow the arm to reach an extended spherical movement of almost a complete hemisphere, being equally mirrored in its pattern on the opposite side, thus allowing the human a mobility of almost a full spherical reach with his arms (except to the back of the body).

Leg muscles are also well developed and engineered to be effective moving extensions. Once again the muscles are not randomly placed within the body. The observer of the muscles of the leg should notice that they are stronger than the arm muscles, and more capable of moving greater weights. Once again these muscles are interwoven to work together for speed in running, walking and carrying weights.

Each muscle cell is connected together in bundles to move bones, being connected between bone and bone spanning flexible joint, or at times between muscle and bone, or from tissue to tissue, or between one organ and another, or within the one organ. Each muscle exists for the express purpose of movement and force. Muscles between bone and bone are found in the arms and legs, or between the spinal column and the ribs and between the pelvic regions and the torso, legs, etc.. Muscles connected to organs are found in the eyes. Muscles found in the organs with no bone involved are found in the vocal apparatus and the heart.

Each of these muscles forms a system in itself. The heart, beating and pumping blood, is a great example. Once again there is no randomness in these muscles, nor in their operations. These muscles are masterpieces in living engineering. The heart is a fluid-style pump that can function automatically for well over 900 years, with no upkeep necessary (that is, when the user follows the instructions given in the manual of life). How does one in all true honesty explain these muscles and muscular systems as random accidental happenings?

Let us examine the eye and its muscular system. The eye has muscles that are attached to bone and to tissue, and tissue to tissue. The muscles are used for the eye movement and are attached to the eye in exact positions for the movement of each eye. Each eye has a movement of more than 50 degrees to the side, or about 135 degrees total side to side (without the movement of the head). The vertical movement of the eye is around 55 degrees upward and 45 degrees downward.

There are also muscles within the eye that allow the eye to adjust the amount of light that enters into the eye itself. There are also other muscles that adjust the lenses causing the eye to focus on the object whether it be near or distant. These are not random systems. There are, also, the complex coordinational factors involved in the eye muscles. The eyes allow the brain to perceive the world around it in three dimensions. How could random chance come up with such a complex system of coordination and observation? There is also the fact that the eye combines to follow an in-flight object at more than 90 miles per hour. And that in real time...

An engineer knows that the total mechanism is composed of its individual parts. In a complex system any random error would nullify the utility of the complete system, creating such a failure that the entire system would be worthless.

Any error would create an incapacitating problem with in the entire body of the organism. How then could one allow the thought of randomness or accidental formation to enter in the extremely complex, the vastly complex muscular system of any creature?

The watch is complex in its design and function. The electronic watch is even more complex in its function as well as in its design, but when placed beside the human body, they are simple toys, made of steel and springs, or of electronic circuits. The human body, and for that matter any living creature, whether it be large or small, creature of the land, of the air, or of the water world; they are fascinatingly, marvelously designed for movement, for living and for activity; each in their own areas of functional existence.

Even plants have special systems with special design features. Each creature is a living engineering masterpiece. Could man with all of his technology and wisdom and intelligence create a self-sustaining living system with intelligent operation? The answer is no. If man cannot understand the systems that exist around him, such that he resorts to feeble explanations of randomness and accident as the engineer and designer, he will never reach the understanding necessary within microbiology, or the understanding needed to analyze those existing systems, nor to understand the intricate design of the systems which already exist, which include functional designs with self-correction, auto-governing systems, self-propelling, auto problem resolutions and actualizations, and above all, healing capacities..

Life is not a simple bolt of lightning striking a pond of hydro-carbon rich products, and creating an amino acid! Nor should one be satisfied to declare that billions of years are enough to randomly generate or create the vastly complex systems within life itself. Even with the thought of quantum physics and intelligent atoms, there are too many factors of complexity involved.

Nobody ever threw a bucket of bolts and pieces into a garbage can and had a motor come out (even with all of the pieces made exactly right). No one ever took the pieces and gears of a watch, having thrown them into the air, had a watch hit the ground, or for that matter, had anything other than a pile of metal gears, screws and other pieces scattered on the ground! It is a fairy tale to think that random chance happenings could create anything other than chaos without order. There are those who have suggested that life came from space. If it could not have come from the passage of billions of years on the earth, random selection in space would never do it either. We still have the organization of the bodies and the muscles to explain. DNA by its self can do nothing!!!

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